

# Implementation of Problem Based Learning Model in Concept Learning Mushroom as a Result of Student Learning Improvement Efforts Guidelines for Teachers

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## Abstract

Problem based learning is a training strategy, students work together in groups, and take responsibility for solving problems in a professional manner. Instructional materials such as textbooks become the main reference of students in study of mushrooms, especially the material is considered less effective in responding to the information needs of students, make students look for other resources related issues mushrooms that is often difficult to be accounted for. This study aims (1) to determine the implementation of problem based learning model on the concept of mushrooms as an effort to improve student learning outcomes for the guidance of teachers, (2) to determine the effectiveness of biological products teaching materials mushrooms as a student reading. This research was conducted in SMA Banda Aceh with descriptive statistical data analysis techniques using a questionnaire survey of students regarding information mushrooms. These results indicate that (1) the development of problem based learning, (2) teaching materials of biological products based on fungal problems Mushrooms as a special supplement for students and teachers

**Keywords:** Problem Based Learning, Instructional Materials and Concepts Mushrooms

## INTRODUCTION

Learning model can dedefinisikan as a conceptual framework that depicts the procedure of organizing systematic learning experience to achieve a certain goal belajar, and serves as a guide for instructional designers and teachers in planning and implementing learning activities (Siberman, 2005). Problem based Learning provides active learning, independent, and self-contained, so as to produce students who are capable of independent self study continuing for life. In a model of learning problem-based learning class more lively atmosphere deiigan discussion, debate, controversy clan, greater student curiosity, problem based learning is a teaching method that is motivating students to achieve academic success.

(Savery, 2006) describes the learning step in problem based learning model took my basic concept, pendefinisian problems, self learning, and knowledge exchange as follows: First, the teacher gives the basic concept of the learning procedure to be performed. In this activity the teacher gives, instructions, references, or links and skills required in learning. It aims to make students more quickly into the atmosphere of learning and getting map is accurate about the direction and purpose of learning. Second, is the definition of the problem. In this step the teacher delivered a scenario or problem and brainstorm students doing various activities. All members of the group to express their opinions, ideas, and responses to possible scenarios that arise independently a wide range of alternative opinions. Third, is a self regulated learning. In this activity students are guided to find different sources to clarify the issues that are being investigated. Sources referred to in the form of written articles stored in the library, web page, or even an expert in the relevant field. Investigation phase has two main objectives, first so that learners seek information and develop an understanding of the relevant issues that have been discussed in class, and second with the information collected is presented in class. Purpose is the exchange of knowledge. After getting the source material for the purpose of deepening the self learning step, students were asked to discuss in their groups to clarify their achievements and formulate the solution of the problem group. This knowledge exchange can be done by having students gather appropriate and give each group presentations and responses.

Mahendra, et al (2008) Assessment describes learning in problem based learning model is done with authentic assessment. This assessment can be done by the teacher portfolio is a systematic collection of student works are analyzed to see learning progress in a certain period of time in terms of the achievement of learning objectives. Assessment is done by means of self-assessment and peerassessment. Self-assessment is an assessment conducted by the learners themselves to his efforts and his work with reference to the objectives to be achieved (standard) by the learners themselves in learning. Peer assessment is an assessment conducted in which learners discussed to provide an assessment of the efforts and results of the completion of the tasks that have been done alone or by a group of friends in

Chin (2008) emphasizes that learning is said to be effective when it begins with a concrete experience. Questions, experiences, formulation and drafting of the problems they create for themselves is the basis for learning.

Boud and Felletti (1997) describes the Advantages of PBL is the students are encouraged to explore the

knowledge he already has then develop independent learning skill to fill the void. It is a lifelong learning because the skills can be transferred to other learning topics, both inside and outside of school.

Problem based learning that focuses on the problems that can evoke the experience of learning the students will have greater autonomy in learning, Lesperance. MM (2008)

Into the biology subjects including natural science. However, biology has a special characteristic of other science. Characteristics such as the existence of particular objects, problems and methods that have clear scientific structure

(Rusman, 2011) The purpose of biological science in general is to profess students understand the concepts of biology and its association with their daily lives, skills about the nature around for, and n various biology concepts to solve yang found in their daily lives. (Sardiman, 2009).

Students in the learning process less encouraged to develop kemampuan think. Classroom learning process directed to the child's ability to memorize information. Brain children forced to recall and hoard various information required to understand the information without recall to connect with their daily lives. As a result, when students graduate from school, they are smart but they are poor theoretical applications. In other words, our educational process is not directed intelligent man, has the ability to solve the problems of life and is not directed to the human form of creative and innovative.

According to (Ibrahim, 2005) describes the approach that is considered appropriate biological science is problem-based learning approach, because the problem-based learning, learning in design in the form of learning that begins with the structure of the real problems associated with the concept of the concept biology that will be taught.

Learning begins after students are faced with a real problem structure, in this way the students know why they are learning, practical lab work or through discussion with peers themes, can be used to solve the problems it faces Johnson (2002). Problem based learning intended to improve learning outcomes and motivation, because through problem based learning students learn how to use an interactive process to assess what they know, identify what they want to know, gather information information and collaboratively evaluate the hypothesis based on the data they have collected (Jaskarti, 2007).

Subjects are all forms of material used to assist teachers in the classroom teaching and learning activities. Instructional materials has a very important position in learning, namely the representation of the class in front of the teacher's explanation. Description teachers, description description should be submitted by teachers, and teachers presented information should be collected in the teaching materials. Thus teachers will also be able to reduce its activities to explain the lesson, have plenty of time to guide students in learning or student (Arends, 2008).

Teaching materials are wujud educational services to learners unit. Individual service may occur denagn teaching materials. Learners are dealing with material that is documented. Learners deal with information that is consistent. Participants were quick to learn, will be able to optimize their ability to learn the material he taught over and over again. Thus optimization of learning services to the learners may occur with instructional materials.

Teaching material is a material substance or subject matter systematically arranged, used by teachers and students in the learning process (Pannen in Belawi, 2003).

Instructional materials is the knowledge, skills, and attitudes that should diarkan by teachers must be learned by the students to achieve basic competency standards, there are several types of subject matter and the type of the type that is a fact, concept, principle or procedure and attitude nilai. Materi learning including the fact that the object name as the name of historical events, symbols, place names, people's names.

According to (Belawati, 2003) teaching materials can be grouped into three categories, namely the type of instructional print, non-print, and display teaching materials. Materials are printed invite a number of materials used in the paper, which can serve for learning purposes or submission of information (kemp and Dayton, in belawi, 2003). From the standpoint of educational technology, instructional materials in various forms as part of instructional media, therefore the design issues need to be done very carefully to ensure that most of the learning objectives can be achieved. In this study only discusses the concept of Mushrooms. Research activities to be conducted is about "Implementation of problem-based learning instructional model on the concept of mushrooms as an effort to improve student learning outcomes for a teacher's guide".

## PROBLEM FORMULATION

To be able to provide guidance that can be used a reference in the research, made the formulation of the problem as follows: "How is implementation model of learning problembased learning on the concept of mushrooms as an effort to improve student learning outcomes for a teacher's guide?"

## Research Objectives

To determine the implementation of problem based learning model on the concept of mushrooms as an effort to improve student learning outcomes to guide teachers

## Benefits of Research

The results of this study are expected to provide benefits to educators in particular teachers of biology and readers

1. Provides information about students' prior knowledge on the material mushrooms (fungi), which is used to formulate appropriate teaching strategies so as to strive to increase the learning model and student motivation.
2. Helping to understand more about the development of teaching materials such as books and resources about environmental issues based

## METHODS

### a. Model Development

This research and development is an (Research and Development) model of learning, particularly in the form of product development of teaching materials on the concept of fungal biology-based approaches to the problem, which is the development of models of teaching materials in other forms, which complements its existing teaching materials.

Development models used in this research is a procedural model. Procedural model is a model that is descriptive, which outlines the steps that must be followed to produce the product. Procedural model used is based on R & D cycle Borg and Gall (in setyosari, 2010), with the explanation that description has been modified and premises research objectives and actual conditions, as described in brief in the development of the model in the table below

### b. Product trials

1. Designs trials carried out in two stages, namely the expert testing and focus group testing. This is done in order to obtain complete data to see the response of students and improve the products developed
2. Subjects trials consisted of 42 randomly selected high school students from two schools in Bacolod City and a team of experts in the content and design of products that have qualified expertise S2 and S3
3. Type of data, test the product on purpose to collect data that can be used as a basis for acceptance of students to instructional materials as reading material for the concept fungi obtained from the questionnaire via the test the students' understanding of the concept of small groups and the suitability of the content of teaching materials obtained from subject experts. The analysis used is deskriptif analysis.

### c. Technical Data Collection and Research Instruments

Techniques of data collection by questionnaire. There are three types of instruments structured questionnaire to capture information and data required in the development of teaching materials on the biological concept of mushrooms that suits your needs and specific information for students to study the concept of fungi, namely a questionnaire, questionnaire Questionnaire B and C

### d. Research Procedures

This research activity is divided into three phases, namely (1) the planning stage; (2) the implementation phase, and (3) data analysis stage

### e. Analysis of data

Analysis of the data in this study is descriptive, ie describing a problem, symptom, or state, and open test hypotheses. The data obtained in this study is qualitative data obtained from a questionnaire completed by the response of students and experts. Data were analyzed with the following steps:

## RESULTS

Obtain the data of this study came from three sources of data on needs analysis, and field tests by students. The results of the three phases are as follows:

- a. The results of the needs analysis The data captured by the analysis of the needs analysis questionnaire distributed to the students needs. Needs analysis involving 65 students about the data needs of students can be concluded in which (a) to understand the concept of mushrooms using only fully student textbook learning. It shows that the lack of students in the learning resources; (B) Students expressed the need for additional teaching materials concept mushrooms that is integrated with other disciplines to address the needs of students in the era of globalization. Students need instructional materials still less answer the problems of mold, so that students are stuck fault information to solve the problem mushrooms. Based on the needs analysis necessary to develop teaching materials that aims to produce teaching materials in addition to the material mold that can assist students in answering the problems, appropriate information and organizing information into a solution for fungus problems, and to train and develop the idea of a critical attitude students in learning. To achieve these objectives the teaching materials developed using problem-based learning. The design of instructional materials can be inferred creativity, critical and participant analytics capabilities of students is very low so as to come up with ideas or new ideas in

solving the problems that they face particular problems mushroom concept, from these results we developed teaching materials on the concept of problem-based biological mushrooms. This problem-based teaching materials to train students to foster their ability to bring creative, critical and able to analyze the problems faced by students.

b. Development of teaching materials

At this stage the activities carried out are done testing on students. At this stage in doing 3 step test that is, small groups of 6 students, the group is 12 people, and a large group of 24 people. In this test assesses the students on display teaching materials, learning activities, affective awareness, resources gain Of the three field trials that saw an increase in the presentation of student assessment results for each of each indicator, thus the product of the development of teaching materials is very effective and feasible for dugunakan as a source of reading material in the study for the concept in high school.

## CONCLUSION

Based on the discussion of the above results it can be seen that the product problem based teaching materials on the concept of mushrooms is based on a needs analysis. After going through the stages of assessment and testing, and revisions can be concluded that the final product of problem-based biology teaching materials, considered to be very effective as reading material for the concept mushrooms

## IMPLICATION

The impact of this research get very positive both to students, educators, and researchers for this study describes the substance of fungal problems in students and help facilitate communication between students and educators of the concept and delivery so that the original concept of the purpose of the concept can be achieved well. Research and product of this study, the textbooks which can also act as a guide concept mushrooms students and teachers. The product is very effective as an answer to the question that had fungus problems often form the question in the hearts of students who often end up falling to the wrong decision

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